

# MASTER OF SCIENCE IN DEFENSE ANALYSIS

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## **THE ARSENAL SHIP CONCEPT: VULNERABILITIES TO SPECIAL OPERATIONS**

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The United States Navy has solicited proposals for a revolutionary class of ship, the Arsenal Ship. Despite reduced funding for the project, the concept is still viable for future development. We show how the development of a new unparalleled weapon system or platform will evoke a response by potential adversaries, based on capabilities and asset investment, by unconventional means. The Arsenal Ship is a target across the spectrum of conflict. This thesis will describe threats that are usually overlooked and examine the Arsenal Ship's vulnerability to them. In addition, we will show how these vulnerabilities arise as the Arsenal Ship operates through the range of geographic areas. Further, this thesis describes possible strategic and tactical defensive actions to enable the Arsenal Ship to counter these unconventional threats. Each recommended action has a direct implication upon the engineered design and the proposed Concept of Operations (CONOP). In addition, the recommendations will influence the strategy for employing any further platform based on the Arsenal Ship concept, anywhere in the world

**DoD KEY TECHNOLOGY AREAS:** Battlespace Environments, Command, and Control Communications, Conventional Weapons, Surface/Under Surface Vehicles-Ships and Watercraft

**KEYWORDS:** Arsenal Ship, ARSHIP, Maritime Special Operations, and Special Operations, Combat Swimmer, VBSS, Visit Board Search and Seize, Unconventional Warfare.

## **THE UTILITY OF THE ADVANCED SEAL DELIVERY SYSTEM (ASDS) (U)**

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The United States Special Operations Command (USSOCOM) is in the process of procuring the Advanced SEAL Delivery System (ASDS), a mini-submersible, to be used by Naval Special Warfare (NSW) forces to conduct maritime special operations. During the development of the ASDS, costs have more than doubled. Consequently, USSOCOM is reevaluating the future of ASDS. This thesis assesses the utility of the ASDS by viewing the ASDS as a part of an "infiltration system" and analyzing the linkages and fit of ASDS within the strategic framework in which it is intended to operate. Modeling the

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primary factors that define ASDS as a viable special operations platform in high, medium, and low threat environments does this. The output of the model is the capability of ASDS expressed in terms of “mission success.” The estimated annual cost of ASDS is also calculated using the current acquisition strategy. In order to compare against current capabilities and their respective costs, this process is repeated for four alternative NSW infiltration systems. Although the ASDS has the highest cost, it is the only system that presents an acceptable probability of mission success in high and medium threat environments. Given NSW’s strategic framework, the ASDS has a high utility.

**DoD KEY TECHNOLOGY AREAS:** Surface/Undersurface Vehicles-Ships and Watercraft, Modeling and Simulation

**KEYWORDS:** Advanced SEAL Delivery System, Mini-Submersible, ASDS, NSW, USSOCOM, Mission Success